CLAIMS

What is claimed is:

1. 1.   A computerized method of automatically generating from a first speech
2. recognizer a second speech recognizer, said first speech recognizer comprising a first
3. acoustic model with a first decision network and corresponding first phonetic contexts,
4. and said second speech recognizer being adapted to a specific domain, said method
5. comprising:
6.   based on said first acoustic model, generating a second acoustic model with a
7. second decision network and corresponding second phonetic contexts for said second
8. speech recognizer by re-estimating said first decision network and said corresponding
9. first phonetic contexts based on domain-specific training data.

1. 2.   The method of claim 1, wherein said domain-specific training data is of a limited
2. amount only.

1. 3.   The method of claim 1, said re-estimating comprising:
2.   partitioning said training data using said first decision network of said first speech
3. recognizer.

1. 4.   The method of claim 3, said partitioning step comprising:
2.   passing feature vectors of said training data through said first decision network
3. and extracting and classifying phonetic contexts of said training data.

1. 5.   The method of claim 4, said re-estimating further comprising:
2.   detecting domain-specific phonetic contexts by executing a split-and-merge
3. methodology based on said partitioned training data for re-estimating said first decision
4. network and said first phonetic contexts.

1   6.   The method of claim 5, wherein control parameters of said split-and-merge

2   methodology are chosen specific to said domain.

1   7.   The method of claim 5, wherein for Hidden-Markov-Models (HMMs) associated

2   with leaf nodes of said second decision network, said re-estimating comprises re-

3   adjusting HMM parameters corresponding to said HMMs.

1   8.   The method of claim 7, wherein said HMMs comprise a set of states s_i and a set

2   of probability-density-functions (PDFS) assembling output probabilities for an

3   observation of a speech frame in said states s_i, and wherein said re-adjusting step is

4   preceded by:

        selecting from said states s_i a subset of states being distinctive of said domain;

6   and

7   selecting from said set of PDFS a subset of PDFS being distinctive of said

8   domain.

1   9.   The method of claim 7, wherein said method is executed iteratively for additional

2   training data.

1   10.   The method of claim 8, wherein said method is executed iteratively for additional

2   training data.

1   11.   The method of claim 7, wherein said first and said second speech recognizer are

2   general purpose speech recognizers.

1   12.   The method of claim 7, wherein said first and said second speech recognizers

1 are speaker-dependent speech recognizers and said training data is additional speaker-

2 dependent training data.

1 13. The method of claim 7, wherein said first speech recognizer is a speech

2 recognizer of at least a first language and said domain specific training data relates to a

3 second language and said second speech recognizer is a multi-lingual speech

4 recognizer of said second language and said at least first language.

1 14. The method of claim 1, wherein said domain is selected from the group

2 consisting of a language, a set of languages, a dialect, a task area, and a set of task

3 areas.

1 15. A machine-readable storage, having stored thereon a computer program having

2 a plurality of code sections executable by a machine for causing the machine to

3 automatically generate from a first speech recognizer a second speech recognizer, said

4 first speech recognizer comprising a first acoustic model with a first decision network

5 and corresponding first phonetic contexts, and said second speech recognizer being

6 adapted to a specific domain, said machine-readable storage causing the machine to

7 perform the steps of:

8 based on said first acoustic model, generating a second acoustic model with a

9 second decision network and corresponding second phonetic contexts for said second

10 speech recognizer by re-estimating said first decision network and said corresponding

11 first phonetic contexts based on domain-specific training data.

1 16. The machine-readable storage of claim 15, wherein said domain-specific training

2 data is of a limited amount only.

1 17. The machine-readable storage of claim 15, said re-estimating comprising:

1   partitioning said training data using said first decision network of said first speech

2   recognizer.

1   18.   The machine-readable storage of claim 17, said partitioning step comprising:

2   passing feature vectors of said training data through said first decision network

3   and extracting and classifying phonetic contexts of said training data.

1   19.   The machine-readable storage of claim 18, said re-estimating further comprising:

2   detecting domain-specific phonetic contexts by executing a split-and-merge

3   methodology based on said partitioned training data for re-estimating said first decision

4   network and said first phonetic contexts.

20.   The machine-readable storage of claim 19, wherein control parameters of said

split-and-merge methodology are chosen specific to said domain.

21.   The machine-readable storage of claim 19, wherein for Hidden-Markov-Models

(HMMs) associated with leaf nodes of said second decision network, said re-estimating

comprises re-adjusting HMM parameters corresponding to said HMMs.

22.   The machine-readable storage of claim 21, wherein said HMMs comprise a set

2   of states s_i and a set of probability-density-functions (PDFS) assembling output

3   probabilities for an observation of a speech frame in said states s_i, and wherein said re-

4   adjusting step is preceded by:

5   selecting from said states s_i a subset of states being distinctive of said domain;

6   and

7   selecting from said set of PDFS a subset of PDFS being distinctive of said

8   domain.

1 23. The machine-readable storage of claim 21, wherein said method is executed
2 iteratively for additional training data.

1 24. The machine-readable storage of claim 22, wherein said method is executed
2 iteratively for additional training data.

1 25. The machine-readable storage of claim 21, wherein said first and said second
2 speech recognizer are general purpose speech recognizers.

1 26. The machine-readable storage of claim 21, wherein said first and said second
2 speech recognizers are speaker-dependent speech recognizers and said training data
3 is additional speaker-dependent training data.

1 27. The machine-readable storage of claim 21, wherein said first speech recognizer
2 is a speech recognizer of at least a first language and said domain specific training data
3 relates to a second language and said second speech recognizer is a multi-lingual
4 speech recognizer of said second language and said at least first language.

1 28. The machine-readable storage of claim 15, wherein said domain is selected from
2 the group consisting of a language, a set of languages, a dialect, a task area, and a set
3 of task areas.

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